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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of: Lohr	§	Group Art Unit: 2637
	§	Examiner: Qutbuddin Ghulamali
Serial No. 09/581,007	§	Atty. Dkt. No. 5858-05400 SR 97/05 US
Filed: July 24, 2000	§	
For: DEVICE FOR LOW-INTERFERENCE SIGNAL TRANSMISSION	§	I hereby certify that this correspondence is being transmitted via facsimile or deposited with the U.S. Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313, on the date indicated below:
	§	2/1/2006 Date — Kevin L. Daffer

APPEAL BRIEF

Box AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Sir/Madam:

Further to the Notice of Appeal faxed to and received in the U.S. Patent and Trademark Office on December 1, 2005, Appellant presents this Appeal Brief. The Notice of Appeal was filed following receipt of a final Office Action mailed October 4, 2005. Appellant hereby appeals to the Board of Patent Appeals and Interferences from a final rejection of claims 41-84, and respectfully requests that this appeal be considered by the Board.

I. REAL PARTY IN INTEREST

The subject application is owned by Schleifring und Apparatebau GmbH, having its principal place of business at Am Hardtanger 10, D-82256 Fürstenfeldbruck, Germany.

II. RELATED APPEALS AND INTERFERENCES

No appeals, interferences, or judicial proceedings are known which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 41-84 are pending in the captioned case. Claims 41-56, 58-74, and 76-84 stand rejected. Claims 57 and 75 are objected to as being dependent upon a rejected base claim.

IV. STATUS OF AMENDMENTS

No amendments to the claims were filed subsequent to their final rejection. Therefore, the Appendix hereto reflects the current state of the claims.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Appellant's invention set forth in independent claims 41, 59, and 79 generally relates to the low interference transmission of a signal (Specification -- pg. 2, lines 8-14). A preferred mechanism in which to transmit such signals is to minimize electromagnetic emissions. One way in which to achieve this result is to fill gaps between individual spectral lines. This can also result in the reduction of the mean spectral power density across the bandwidth of the transmitted signal (Specification -- pg. 3, lines 12-23).

Filling the gaps between spectral lines results from modulating the clock generator within the transmitter to impart a small jitter on that transmitted signal (Specification -- pg. 3, lines 12-23). This modulating technique is the first modulation technique of two modulations upon the transmitted signal. The second modulation can be any form of modulation used to convey the transmitted signal to a receiver. For example, the second modulation technique might be an amplitude modulation, frequency modulation, or any other modulation technique (Specification -- pg. 3, lines 20-23).

The concept of using a first modulation technique independent and separate from a second modulation technique causes the transmission signal to undergo a "significant spreading" between spectral lines (Specification -- pg. 4, lines 17-27; pg. 5, lines 6-19). One way in which to apply jitter to

the clock of the transmitter and thereby spread or fill gaps between spectral lines is to modulate the voltage-controlled oscillator (VCO) of the transmitter (Specification – pg. 5, lines 12-22).

Details of the transmission system, illustrating the transmitter with an embedded modulator, and a receiver for receiving the modulated signal is shown in Fig. 1 and described on page 11, lines 7-18 of the present specification. There are numerous ways in which to spread the spectrum. One illustrative example is to apply pseudo-noise data coding to modulate the clocking signal applied to the transmitted carrier (Specification -- pg. 17, lines 1-10). A comparison of Figs. 5 and 7 indicates pseudo-random coding applied to the spectral lines of Fig. 5 to spread or fill gaps between spectral lines. Fig. 9 further illustrates another modulation technique of frequency-modulating the bit clock signal to impart jitter on the edges of the clock, which is then applied to form the transmission carrier. Fig. 20 also illustrates frequency modulation of a PCM signal to spread the spectrum of the original spectral lines shown in Fig. 19. Of importance is that regardless of the type of modulation applied, there is "only a minor effect on the width of the spectrum" (Specification -- pg. 7, lines 22-23).

As shown throughout the figures, and specifically in Figs. 7, 8, and 16, while gaps between the spectral lines are filled and power density is reduced, the overall width of the spectrum does not significantly change. In fact, the bandwidth of the output signal, after modulation, does not substantially increase or decrease. The only change is that the gaps between spectral lines is filled and the power density is decreased.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 41, 42, and 59 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,831,463 to Faroudja (hereinafter "Faroudja").

2. Claims 43-56, 58, 60-74, and 76-84 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Faroudja in view of U.S. Patent No. 5,995,534 to Fullerton et al. (hereinafter "Fullerton").

VII. ARGUMENT

The contentions of the Appellant with respect to the ground of rejection presented for review, and the basis thereof, with citations of the statutes, regulations, authorities, and parts of the record relied upon are presented herein for consideration by the Board. Details as to why the rejections cannot be sustained are set forth below.

A. Rejection of Claims 41, 42, and 59 under 35 U.S.C. § 102(b)

Claims 41, 42, and 59 were rejected under 35 U.S.C. § 102(b) as being anticipated by Faroudja. The standard for "anticipation" is one of fairly strict identity. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art of reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); MPEP 2131. Furthermore, anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, as arranged in the claim. *W.L. Gore & Assocs. V. Garlock*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983). Using these standards, Applicant submits the cited art fails to disclose each and every element of the currently pending claims, some distinctive features of which are set forth in more detail below.

Faroudja teaches away from a modulator unit that produces a spectral power density being reduced without a bandwidth of the output signal being substantially increased or decreased. Present independent claims 41 and 59 each describe a modulator unit that modulates a signal so that the spectral lines of the output signal have gaps filled therein between individual spectral lines resulting in a spectral power density that is reduced. Specifically, the spectral power density is reduced without a bandwidth of the output signal being substantially increased or decreased. Support for the amendments to claims 41 and 59, as well as claim 79, is set forth in the originally filed specification, e.g., page 7, under the heading "Phase-shift technique," lines 6-7. Moreover, the claimed concept of not substantially changing the bandwidth of the output signal is illustrated, for example, in Figs. 8 and 16, and Figs. 5 and 7 of the present specification. As shown by comparing Figs. 5 and 7, the spectral lines of Fig. 5 are modulated so that the gaps between the spectral lines are filled (shown in Fig. 7). Moreover, the power density of each spectral line is reduced. However, the overall bandwidth beginning at 9 Hz and extending upwards to 1 GHz does not change. Thus, the overall bandwidth remains unaffected even though the spectral lines within that bandwidth are filled and the power density is reduced. The various spectral lines shown in each of these figures are modulated so that the gaps between the spectral lines (or

around a spectral line) are filled in with the modulated signal. However, the overall spacing between the spectral lines commensurate with the bandwidth from one spectral line to the next, does not substantially change when the gaps between spectral lines are filled.

Contrary to the present independent claims 41 and 59, Faroudja specifically requires that when modulating a transmitted signal, the higher frequency spectral components are folded into the lower-band and mid-band spectral gaps (Faroudja -- col. 4, lines 39-44). Consequently, the modulated signal that folds the higher frequency components into the lower frequency components comprises a process which "compress[es] spectrum video through the storage or transmission path" (Faroudja -- col. 4, lines 45-46). By folding the higher frequency components into the lower frequency components in Faroudja, an output signal is being produced that has a decreased bandwidth -- directly contradictory to present claims 41 and 59 of which the bandwidth does not decrease.

Faroudja does not disclose a modulator unit for modulating an output signal, a carrier signal, or output signal at any site in the transmission circuit, independently of a modulation technique selected for the purpose of signal transmission. Present claims 41 and 59 each recite two different modulation techniques. A first modulation technique is that used to fill gaps between individual spectral lines, whereas a second modulation technique that is independent of the first modulation technique is used for the purpose of signal transmission. Using two separate modulation techniques that are independent from one another allows the gap filling technique to not affect or be affected by any other form of modulation used to transmit a signal.

Contrary to independent claims 41 and 59, Faroudja makes no mention whatsoever of two different modulation techniques, one independent from the other. In fact, the only modulation described in Faroudja is the folding technique. For the sake of simplicity, Faroudja specifically states that the folding technique provides a simplistic modulation mechanism for filling gaps as well as transmitting a signal across the transmission medium (Faroudja -- col. 4, lines 26-35). When reading Faroudja, a skilled artisan would recognize that in order to simplify the transmission mechanism, folding higher frequency components into the lower frequency components not only reduces the overall bandwidth of the modulated signal, but allows for ease of recovery and simplistic transmission design at both the transmitter and receiver ends of the transmission system (Faroudja -- col. 5, lines 26-30). Thus, a skilled artisan would have no incentive for making modifications to Faroudja to achieve a more complex, independent, and dual modulation technique as presently claimed.

For at least the foregoing reasons, Appellant asserts that independent claims 41 and 59, as well as claims dependent therefrom, are not anticipated by the cited art.

B. Rejection of Claims 43-56, 58, 60-74, and 76-84 under 35 U.S.C. § 103(a)

Claims 43-56, 58, 60-74, and 76-84 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Faroudja in view of Fullerton. To establish a case of *prima facie* obviousness of a claimed invention, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. Second, there must be a reasonable expectation of success. As stated in MPEP 2143.01, the fact that references can be hypothetically combined or modified is not sufficient to establish a *prima facie* case of obviousness. *See In re Mills*, 916 F.2d. 680 (Fed. Cir. 1990). Finally, the prior art references must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d. 981 (CCPA 1974); MPEP 2143.03, emphasis added. Specifically, "all words in a claim must be considered when judging the patentability of that claim against the prior art." *In re Wilson* 424 F.2d., 1382 (CCPA 1970). Using these standards, Applicants contend that the cited art fails to teach or suggest all features of the currently pending claims, some distinctive features of which are set forth in more detail below.

As stated above in response to the § 102 rejections, Faroudja does not teach an output signal having a bandwidth that does not substantially change (i.e., does not substantially increase or decrease), nor does Faroudja disclose two separate and independent modulation techniques -- one for filling gaps and one for transmitting a signal as presently claimed in claims 41 and 59. In addition, Faroudja cannot be combined with Fullerton to teach the limitations contained in claims 41 and 59. Therefore, absent the teachings contained in claims 41 and 59, Applicant asserts that all claims dependent therefrom (claims 42-58 and 60-78) must also be patentably distinct over Faroudja and Fullerton.

Faroudja and Fullerton do not teach or suggest a first stationary part and a second movable part, with a transmission circuit coupled to transmit an output signal between the first stationary part and the second movable part. Present independent claim 79 recites a transmission circuit coupled to transmit an output signal between a first stationary part and a second movable part. Contrary to claim 79, neither Faroudja nor Fullerton make any mention of a stationary part and a movable part, much less a transmission circuit which transmits a signal between the first stationary part and the second movable part. The Office Action asserts that the first stationary part and the second

movable part are set forth in Faroudja (Office Action -- page 7). However, upon a closer reading of Faroudja, nowhere in the sections cited by the Examiner is there any mention that a portable camera and a recorder, such as a video cassette recorder, constitute both a stationary part and a movable part. Moreover, there is no reference made in Faroudja that a "consumer quality video cassette recorder" is stationary. In fact, it is well known to a skilled artisan that a video cassette recorder (VCR) is typically movable, similar to a portable camera. Thus, there is no teaching of the claim limitation having a transmission circuit which transmits an output signal between a stationary part and a movable part.

Faroudja and Fullerton do not teach or suggest a modulator unit that controls a clock generator for broadening of spectral lines. Present dependent claims 45-48 and 63-66 make clear that the particular modulation technique involves a modulator unit that controls a clock generator. The clock generator thereby produces frequency modulation to the clock cycle. This can be achieved by use of a VCO as a frequency-determining element, and the frequency modulation is applied to the VCO. Nowhere is there any mention in either Faroudja or Fullerton of modulating a clock cycle using frequency modulation or any other technique via a VCO as set forth in present claims 45-48 and 63-66. Absent any teaching of this claim limitation through use of clock modulation or otherwise, the cited art fails to render obvious claims 45-48 and 63-66.

For at least the reasons stated above, Appellant asserts that claims 41, 59, and 79, as well as claims dependent therefrom, are patentably distinct over the cited references.

VIII. CONCLUSION

For the foregoing reasons, it is submitted that the Examiner's rejection of and/or objection to claims 41-84 was erroneous, and reversal of the Examiner's decision is respectfully requested.

The Commissioner is hereby authorized to charge the required fee(s) to deposit account number 50-3268/5858-05400.

Respectfully submitted,

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IX. APPENDIX

The present claims on appeal are as follows.

41. System for low-interference transmission of a signal, comprising:

a transmitter for generating an output signal to be transmitted via a transmission circuit, the signal having substantially a line spectrum;

a modulator unit associated with the transmitter for modulating the output signal to be transmitted, or a carrier signal of transmitting means in the transmitter, or the output signal at any site in the transmission circuit, independently of a modulation technique selected for the purpose of signal transmission;

a receiver, spatially separated from the transmitter, for receiving a modulated transmitted signal via the transmission circuit; and

wherein the modulator unit modulates the signal so that spectral lines of the output signal are broadened to fill gaps between individual spectral lines, and a spectral power density of the output signal is reduced without a bandwidth of the output signal being substantially increased or decreased.

42. System according to Claim 41, wherein the modulator unit modulates the output signal to be transmitted, or a carrier signal of transmitting means in the transmitter, or the output signal at any site along the transmission circuit, independently of a transmission cycle.

43. System according to Claim 41, wherein a controller serves to control the modulator unit.

44. System according to Claim 41, wherein the transmitter comprises a clock generator.

45. System according to Claim 44, wherein the modulator unit controls the clock generator appropriately for broadening the spectral lines.

46. System according to Claim 45, wherein the modulator unit subjects a cycle frequency of the clock generator to frequency modulation.

47. System according to Claim 46, wherein the clock generator comprises a VCO as a frequency-determining element.

48. System according to Claim 47, wherein the control unit adjusts the VCO.

49. System according to Claim 41, wherein the modulator unit subjects the signal to be transmitted to frequency, phase or amplitude modulation.

50. System according to Claim 41, wherein the modulator unit subjects the carrier signal of the transmitting means in the transmitter or the transmitter output signal at substantially any site along the transmission circuit to frequency or phase modulation, independently of a modulation technique selected for the purpose of signal transmission.

51. System according to Claim 41, wherein the carrier signal or the transmitter output signal is pulsed, and the modulator unit shifts or delays individual signal edges towards earlier or later points of time in proportion to a signal defined by an additionally provided modulation signal generator.

52. System according to Claim 51, wherein the modulator unit comprises a delay control means for analyzing the transmitter output signal and for controlling a delay circuit which causes a shift or delay.

53. System according to Claim 52, wherein the delay control means comprises a PLL means, and the delay circuit comprises a flip-flop circuit.

54. System according to Claim 41, wherein the transmitter comprises a PLL means.

55. System according to Claim 54, wherein a variation of modulation by the modulator unit is covered by a control range of the PLL means of the transmitter.

56. System according to Claim 41, wherein data coding by means of pseudo random noise is performed in addition to a modulation by the modulator unit.

57. System according to Claim 41, wherein a second controller unit is provided in the receiver for controlling the receiver synchronously with the modulation performed by the modulator unit in the transmitter or at substantially any site along transmission circuit, so that the signal received in the receiver is processed as an unmodulated signal, a synchronization between the transmitter, or the

transmission circuit, and the receiver being achieved by means of the modulation signal or even another signal jointly available to the transmitter, or the transmission circuit, and the receiver.

58. System according to Claim 41, wherein an additional transmission circuit is provided between the transmitter, or the transmission circuit, and the receiver for a transmission of a synchronization signal for controlling a modulation of the transmitter, or the transmission circuit, and the receiver.

59. Method for low interference transmission of a signal, comprising the steps of:

generating an output signal to be transmitted with a transmitter at a first location, the signal having substantially a line spectrum;

modulating the signal to be transmitted, or a carrier signal of transmitting means in the transmitter, or an output signal at any site of the transmission circuit with a modulator unit, independently of a modulation technique selected for the purpose of signal transmission, to form a modulated signal;

transmitting the modulated signal from the first location;

receiving the modulated transmitted signal via a transmission circuit at a second location spatially separated from the first location; and

wherein the signal is modulated so that spectral lines of the output signal are broadened to fill gaps between individual spectral lines, and a spectral power density of the generated signal is reduced, without a bandwidth of the generated signal being substantially increased or decreased.

60. Method according to Claim 59, wherein the spectral power density is reduced by filling gaps between individual spectral lines.

61. Method according to Claim 59, wherein the modulator unit is controlled by means of a controller.

62. Method according to Claim 59, wherein the transmitter comprises a clock generator.

63. Method according to Claim 62, wherein the clock generator is appropriately controlled by means of the modulator unit for broadening the spectral lines.

64. Method according to Claim 63, wherein the cycle frequency of the clock generator is frequency modulated by means of the modulator unit.

65. Method according to Claim 64, wherein the clock generator comprises a VCO as frequency-determining element.

66. Method according to Claim 65, wherein the VCO is adjusted by means of the controller.

67. Method according to Claim 59, wherein the modulator unit subjects the signal to be transmitted to frequency, phase or amplitude modulation.

68. Method according to Claim 59, wherein the modulator unit subjects the carrier signal of the transmitting means of the transmitter, or the transmitter output signal, at substantially any site along the transmission circuit to frequency or phase modulation, independent of the modulation technique selected for the purpose of signal transmission.

69. Method according to Claim 59, wherein the carrier signal or the transmitter output signal is pulsed, and the modulator unit shifts or delays individual signal edges towards earlier or later points of time in proportion to a signal defined by an additionally provided modulation signal generator.

70. Method according to Claim 69, wherein the modulator unit comprises a delay control means for analyzing the transmitter output signal and for controlling a delay circuit which causes a shift or delay.

71. Method according to Claim 70, wherein the delay control means comprises a PLL means and the delay circuit comprises a flip-flop circuit.

72. Method according to Claim 59, wherein the transmitter comprises a PLL means.

73. Method according to Claim 72, wherein a variation of modulation by the modulator unit is covered by a control range of the PLL means of the transmitter.

74. Method according to Claim 59, wherein data coding is performed by means of pseudo random noise in addition to a modulation by the modulator unit.

75. Method according to Claim 59, wherein a second controller unit is provided in the receiver for controlling the receiver synchronously with the modulation performed by the modulator unit in the transmitter or at substantially any site along transmission circuit, so that the signal received in the receiver is processed as an unmodulated signal, a synchronization between the transmitter, or the transmission circuit, and the receiver being achieved by means of the modulation signal or even another signal jointly available to the transmitter, or the transmission circuit, and the receiver.

76. Method according to Claim 59, wherein an additional transmission circuit is provided between the transmitter, or the transmission circuit, and the receiver for a transmission of a synchronization signal for controlling a modulation of the transmitter, or the transmission circuit, and the receiver.

77. System according to Claim 41, wherein the transmission circuit is selected from the group consisting of a line-bound transmission circuit, a contacting transmission circuit, a contact-free transmission circuit, or combinations thereof.

78. System according to Claim 41, wherein the signal comprises a digital signal.

79. System for transmitting a digital data signal, comprising:

a first stationary part;

a second movable part;

a transmitter for generating a transmitter output signal that includes a carrier signal and the data signal;

a receiver for receiving the transmitter output signal;

a transmission circuit coupling said transmitter to said receiver and for transmitting the transmitter output signal between said first stationary part and said second movable part;

a modulator coupled to said transmission circuit for generating a modulation signal;

a controller coupled to and controlling said modulator to generate the modulation signal and to apply the modulation signal at substantially any site in and along the transmission circuit to modulate the transmitter output signal so that a signal spectrum of the transmitter output signal is substantially distributed and a mean spectral power density of the transmitter output signal is reduced; and

wherein the modulator modulates the transmitter output signal so that spectral lines of the transmitter output signal are broadened to fill gaps between individual spectral lines of

the transmitter output signal, and a spectral power density of the transmitter output signal is reduced without a bandwidth of the transmitter output signal being substantially increased or decreased.

80. System according to Claim 79, wherein the transmission circuit is selected from the group consisting of a line-bound transmission circuit, a contacting transmission circuit, a contact-free transmission circuit, or combinations thereof.

81. System according to Claim 41, wherein the transmitter and the receiver are mobile relative to each other.

82. System according to claim 41, wherein the transmitter is a rotating data transmission device.

83. Method according to Claim 59, wherein the transmitter and the receiver are mobile relative to each other.

84. Method according to claim 83, wherein the transmitter is a rotating data transmission device.

X. EVIDENCE APPENDIX

No evidence has been entered during the prosecution of the captioned case.

XI. RELATED PROCEEDINGS APPENDIX

No prior or pending appeals, interferences, or judicial proceedings are known to Appellant or Assignee which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.